RECRUITING AND TRAINING LABOR FOR WOODS WORK

by

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FOREWORD

This is the second in a series of papers about the supervisory part of the logging job. It deals with recruiting and training men for logging; it stresses the need for safety. The previous paper in the series (Station Paper 18) dealt with choosing methods and equipment; other papers planned will be about job lay-out, purchase of timber, and marketing timber products.

Eventually these papers may be combined under one cover; so your comments, criticisms, and suggestions will be appreciated.

The woodsworkers' part of the logging job has already been covered in the Northeastern Loggers' Handbook, which is now being prepared for printing as a Department of Agriculture publication.

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RECRUITING AND TRAINING LABOR FOR WOODS WORK[1]

by

Fred C. Simmons
Logging Specialist
Northeastern Forest Experiment Station

During the past few years northeastern timber operators have been confronted with a more difficult problem in keeping their logging crews up to strength than ever before. The old race of loggers, content to live in a rough woods camp 20 miles back from a highway, and proud of their physical strength and their ability to use loggers' hand tools like the ax, the crosscut saw, and the peavy, is about gone. Young men have not been attracted to woods work. They think they can find easier, more pleasant, and better paying jobs in town.

Logging operators are tremendously interested in every possible method of improving this situation. They are building better camps, often with facilities for the families of the woodsmen, or are providing transportation for the men from their homes to the job and back. They are providing more mechanical equipment to make the work easier and more productive; and they are beginning to work out better methods of recruiting and training labor. This publication has been prepared to help northeastern lumbermen in this last effort.

A DANGEROUS OCCUPATION

Lumbering is one of our most dangerous major industries. United States Department of Labor records will show you that one out of every

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[1]Based on a talk presented before the Maine Safety Conference at Poland Springs, Maine, September 16-17, 1948.

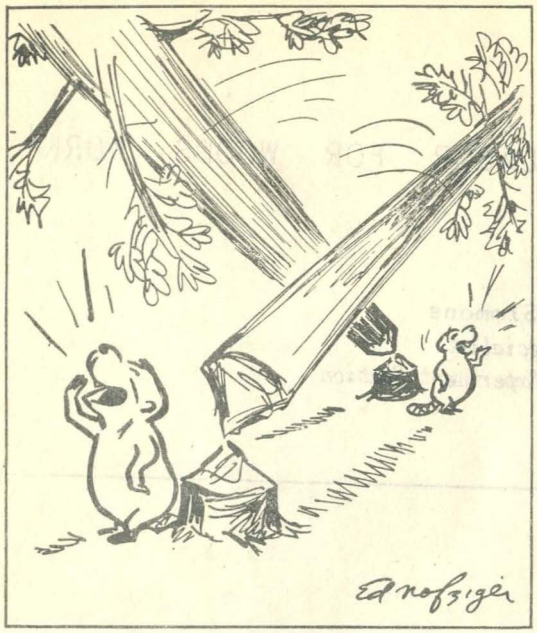


Figure 1.--Logging is a dangerous occupation, even for experts.

six men engaged in work in the woods is injured seriously enough each year that he loses time from work. This average holds true whether the men are cutting big timber or small, long logs or short bolts. Accidents are somewhat more serious on the big-tree and long-log operations, but not more frequent.

Accidents with hand tools lead all other causes of injury to woods workers. Axes, saws, spuds, drawshaves, peavies, cant hooks, pikes, and pickaroons all take their toll. Accidents from falls are next most frequent, and from falling objects third. Injuries from machinery are increasing every year, as more and more of our logging becomes mechanized.

Managers of lumbering operations are interested in improving this record. They realize that there is a dollars-and-cents advantage in having the best safety record possible. They know cases like that of a man in the State of Maine who lost his business paying damage claims to an injured worker. The court decided that he had a poorly guarded jump saw in his mill.

Such direct costs are only a portion of the cost of an accident. Authorities who have studied the problem say that indirect costs average three times the direct costs. These include loss of time of other men on the job, finding and breaking in new workers, and general reduced efficiency.

What can be done about improving safety conditions in the woods and in sawmill operations?

SUPERVISION

Loggers and lumbermen work in the open, and are subject to hazards of rough ground and all sorts of weather conditions; they manipulate heavy, bulky, and often perverse materials. Usually loggers are pretty much on their own, on a contract or piecework basis, providing their own tools and making their own plans for each day's work. Some-

times the supervisor does not see them for weeks at a time, and when he does he does not have too much authority over them.

But woods crews are subject to some control. Many hazards can be eliminated. Management can control such things as road construction, including both location and road standards; choice and maintenance of heavy equipment; loading and unloading sites. Crews can be spotted so that there is little chance of their interfering with one another, and yet so that help is at hand if an accident occurs. A tractor, grader, or powder man, for example, should never be allowed to work alone. On the other hand, a skidding crew should not be too close on the heels of the fallers, and loading and skidding should not be done at the same time at the landing.

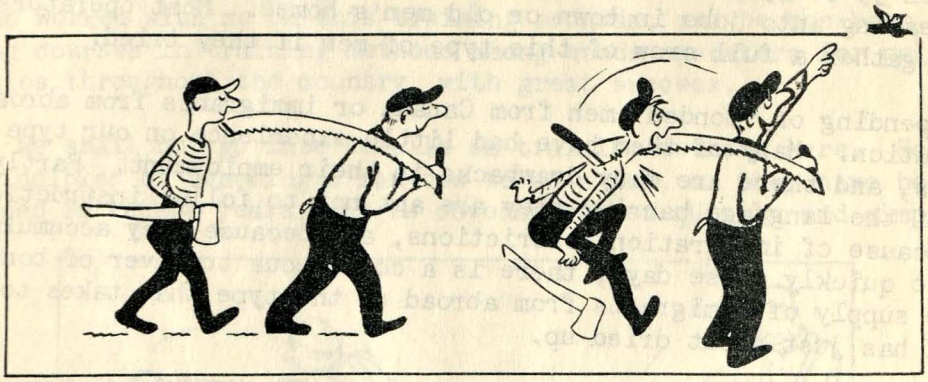


Figure 2.--Carelessness with hand tools is the major cause of accidents in logging.

Since the major causes of accidents in the woods are carelessness with hand tools, falls, and falling objects, these accidents seem at first glance to be the men's own fault, and to a large extent they are. But management is responsible. There are safe and unsafe ways of carrying hand tools, of maintaining them, of storing them, and of using them. These have been described and illustrated in many publications, including the Northeastern Forest Experiment Station's NORTHEASTERN LOGGERS' HANDBOOK, and in releases and pictures from the safety departments of trade associations and several of the insurance companies. Some states and provinces have issued safety codes for logging operations. Especially good ones were developed by the State of Oregon and the Province of Quebec.

Supervisors can also control recruiting and training of labor; they can suggest some safety practices, and can insist on others.

RECRUITING LABOR

Hiring only old and experienced woodsmen might be considered one way to cut down on the number of accidents. To some extent this is true.

Old woodsmen have been around logging jobs a long time, they have seen many serious accidents occur; and the very fact that they are still around and working indicates that they have learned some lessons of self-preservation, and have developed some safe work habits. But think back. How many old woodsmen do you know who have not had many accidents themselves, and who do not continue to have them? Lost fingers and toes and stiff joints from broken bones are all too commonplace among them.

In training prisoner-of-war crews for woods work, we found that we could rarely use a crew of old woodsmen to demonstrate the jobs to be done, because they habitually violated the safety principles we were trying to teach. Records of a pulp company operating in Maine show that the greatest accident frequency was in men over 70, and the next in men 35 to 45. And the old race of woodsmen is fast dying off, or disappearing into jobs in town or old men's homes. Most operators could not gather a full crew of this type of men if they tried.

Depending on "bonded" men from Canada or immigrants from abroad is no solution. Many of them have had little experience on our type of operations, and there are many drawbacks in their employment. Partly because of the language barrier they are apt not to follow instructions well. Because of immigration restrictions, and because they accumulate a stake so quickly these days, there is a continuous turnover of bonded men The supply of immigrants from abroad of the type that takes to woods work has just about dried up.

I think that the best solution is to attract good local boys into woods work, train them to do the job right, provide them with the right tools, and insist on methods that will make the job as easy, productive, and safe as possible. There are some excellent examples of this type of crew in the Northeast.

TRAINING

Tremendous advances have been made in training methods in recent years. During the war the best training experts in the country pooled their efforts to develop rapid and foolproof methods of training men in both the armed services and in industry. They were highly successful. Men--and women too--were trained to do jobs that had always been thought highly technical, like typesetting, welding, and complicated assembly work. And they were trained to do the work correctly and safely, and in record time.

During this period I happened to be in charge of a program for training prisoners of war for woods work. More than 2,000 prisoners, mostly Germans and Italians, 90 percent of whom had never worked in the woods, were trained to use the ax and saw, to drive teams, and to operate power saws and tractors. This training was done without a serious accident, and the subsequent work done by these men under the

supervision of private contractors was unusually free of accidents.

You probably have heard that the productivity of these crews was low. It was. But I cannot believe that this was a reflection on the training they had received. More often it was a reflection on the supervision they got on the job, and their lack of incentive to put out a decent days' work. Early in the program, one pulp company in Maine was getting 3/4 cord per man per day from German prisoners while several others were averaging only 1/3 cord. Later, when 1-1/4 cords was set as a daily quota, many crews attained it with ease; often they were finished and back in camp by 2 or 3 o'clock in the afternoon.

The American Pulpwood Association has since employed one of the men who worked with me on this training program, and he has been conducting courses in training methods among woods operators for pulp companies throughout the country, with great success.

We shall not go into details on training methods here. However, the principles of teaching a man how to do a job, as they have been developed in recent years, can be covered rather quickly and simply.

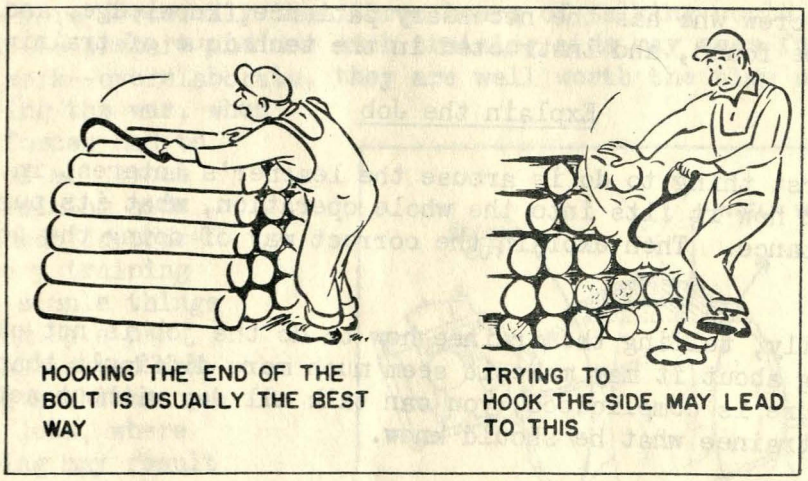


Figure 3.--Proper training is one of the best ways to prevent accidents, even with the most elementary tools such as the pulp hook.

First, the man giving the training must not only be a good trainer, but he should know the job thoroughly. He must analyze the job to be taught, and work out, step by step, the best way to teach it. In each step he must make sure that he recognizes and brings out the key points necessary to do the job correctly and safely. Many of these key points the expert does automatically without realizing that he is taking them into account. It is necessary to stress them in teaching a beginner, or he may botch the job or hurt himself.

As an example, how many axmen know that in chopping they should keep their eyes on the cut, rather than on the ax? How many know that they should make sure that one corner or the other of the blade is free of the wood, on each stroke, to make it easy to flip out the chip? These are key points. Watch a really good chopper and see if he does not do these things.

Once the job is broken down into its logical steps and the key points in connection with each are recognized, the trainer is ready to train.

The best place to conduct training is usually out on the job--not in the office. Selection of the place is important. It should be such that the trainee can devote all of his attention to the instructor. Avoid places where other men or equipment are working, for such things will divert attention from the training. Avoid places where noises will divert attention or will drown out what the instructor is trying to say.

Choice of the instructor is very important. Often the boss himself is best qualified to give the training, and sometimes he may be able to devote the necessary time to it. More frequently an experienced member of the crew who has the necessary patience, knowledge, and ability will have to be found, and instructed in the technique of training.

Explain the Job

The first thing to do is arouse the learner's interest in the job by telling him how it fits into the whole operation, what its purpose is, and its importance. Then explain the correct way of doing the job, step by step.

Generally, telling the trainee how to do the job is not enough. Merely talking about it may make it seem much more difficult than it is. If the procedure is complicated, you can talk all day without actually teaching the trainee what he should know.

Demonstrate It

If the trainee can see the job being performed he can learn much faster than by merely being told about it. You can demonstrate the job in a number of ways.

One of the best ways is to have a demonstration crew of skilled men. They should be rehearsed so that they can exphasize the points the instructor wants to make. They can demonstrate right and wrong ways. A good demonstration crew can make the training job not only interesting, but entertaining.

Generally it is best for the instructor not to try to do the demonstrating himself. If he gets involved in working a machine or working

Figure 4.--A simple chart or diagram can help greatly in training. It can drive a point home forcefully.

with a tool he is not in a good position to explain or to answer questions.

In explaining or demonstrating the job, charts and diagrams and pictures can be of great help. Many equipment manufacturers can provide charts or diagrams showing working parts and other interior details that help the operator to understand the machine and to maintain it properly. Safety charts showing right and wrong methods of doing various jobs are available from many sources.

For special purposes, charts or drawings can easily be prepared. It may take an hour to prepare a chart, but a good chart can drive a point home more forcefully than three hours of talking could. Although taking time to prepare and use such training aids may seem fussy, and--for woods work--overelaborate, they are well worth the time spent on them. During the war, when the armed forces had to train men of all types quickly, training aids were provided for practically every training job: from simple things like putting up a pup tent to complicated aerial bombing problems. In logging jobs, where poor training may result in accident and death, the use of simple training aids is well worth considering.

Larger operators should consider the use of even the more elaborate training aids such as motion pictures and film slides. The Army found these the most effective of all training aids, and made wide use of them. Movies

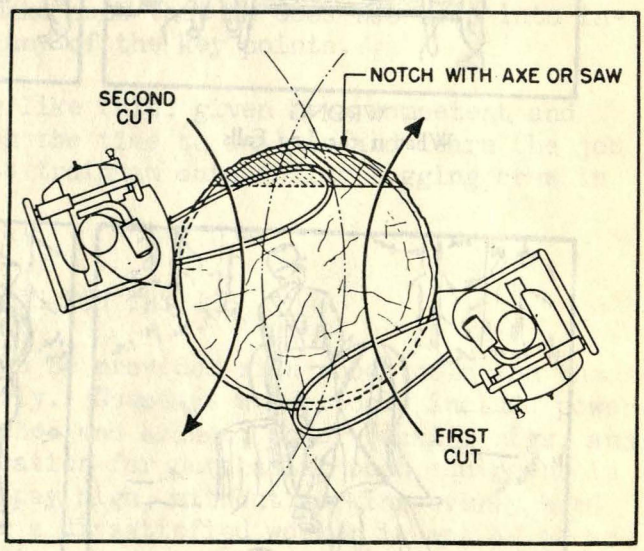
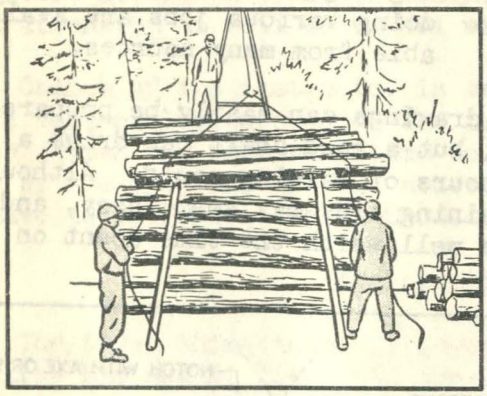


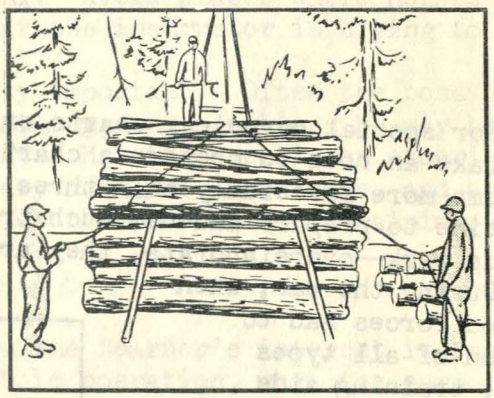
Figure 5.--An hour of talking may not make clear the method of felling a tree thicker than the chain saw can cut through. But a simple chart can explain it quickly. This chart is from a typical chain-saw operations and maintenance manual.

WRONG
Don't Cut from the top.

RIGHT
Cut from the Inside

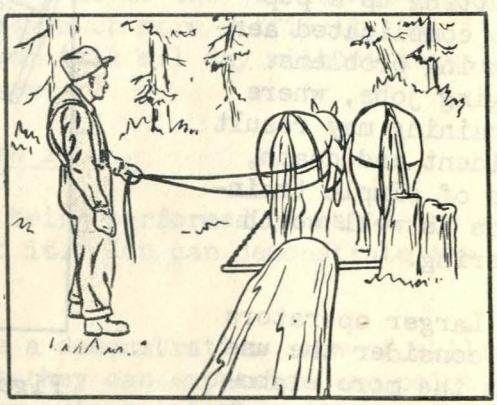


WRONG
What if the Log Falls



RIGHT
In the Clear

WRONG
Due for a Pinch



RIGHT
Stand to the Side

Figure 6.--Some sample training charts. Showing right and wrong ways is good training technique. Show how ridiculous and dangerous the wrong way is, but make sure the trainee remembers the right way.

have always been associated with entertainment, and training films in this way have a head start on all other training devices.

Analyses of training methods have shown that use of training aids makes the training job not only more efficient, but also faster. And they show the worker that his employers think enough of him to want to help him with his job.

Have the Trainee Do It

After the job has been explained and demonstrated, the trainee should be made to apply the training by doing the job himself. The instructor should watch carefully, correcting, answering questions, and making sure that the trainee knows the key points of the job.

It is a good idea to have the trainee tell the instructor what he is doing and why as he goes along to make absolutely sure he understands each step. Sometimes it is necessary to have the trainee repeat the job several times, to make sure he gets it absolutely straight. But, as soon as possible, and before he gets into the habit of depending on the instructor too much, the trainee should be put on his own, to do the work by himself. The instructor's responsibility does not end here, however. From time to time, frequently at first, the trainee should be watched as he does the work to make sure that he does not slip into incorrect work habits, or violate any of the key points.

With a system of training like this, given by a competent and careful instructor, who has taken the time to analyze and learn the job he is teaching, it is possible to train an outstanding logging crew in a surprisingly short time.

THE TOOLS FOR THE JOB

A trained woods crew should be provided with good tools and the equipment to maintain them properly. Nowadays woods tools include power saws, tractors equipped with winches and arches, power bucking rigs, and mechanical loaders. The justification for purchasing such equipment is largely to keep productivity and pay high, without working overly hard or long hours. A tired worker or a dissatisfied worker is apt to be an unsafe worker.

It is just as important to train a worker to maintain his tools and equipment as it is to train him how to use them. Equipment must be kept in good shape to put out the work, and to be safe to operate and work around. Loss of a tractor from a job is apt to be as serious to production as the loss of four or five teams of horses.

Consequently, each piece of equipment should be in the care of a

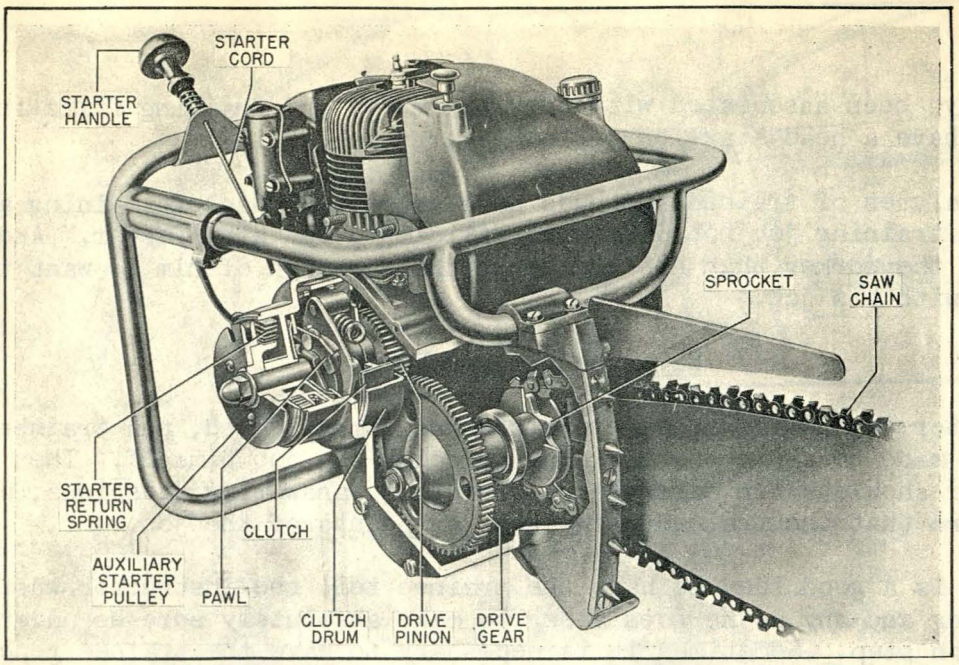


Figure 7.--The mechanization of logging demands careful training and more careful maintenance of equipment. Charts such as this one from a maintenance manual help to explain the operation and maintenance of equipment.

competent, well trained, and careful operator who will perform routine maintenance and repairs and who will report anything unusual about its operation that might mean impending trouble or breakdown. Each item of equipment should also be regularly inspected by a competent mechanic. Loss of brakes or even a tire blowout on a log truck can mean not only the loss of the truck, but also the loss of the operator. A breaking cable or defective brakes on a loader winch can be equally serious. An efficient mechanized job usually depends on each piece of equipment's working steadily, in pace with each other phase of the job.

The Most Abused Tool

Training is badly needed in the use of wire rope. Wire rope is the most abused tool in Northeastern logging. And it is a tool that is becoming more and more indispensable. Wire rope is used to bunch and skid loads of logs out of the woods behind the tractor, for cable-skidding in unusually rough and rugged areas, to snub sleds down steep pitches, and to load logs and bind loads. It is important that the correct size and type of rope be chosen for each of these various uses, and even more important that each length be provided with the proper fittings, correctly applied.

On 90 percent of Northeastern logging operations, one or both of

these requirements is violated. A lot of second-hand elevator rope has found its way into the woods. Most of it is being misused. Clips, knots, and half hitches in place of splices and sockets on live lines are common. The rope is not coiled and uncoiled properly, is installed incorrectly on equipment, and is not kept properly lubricated. Results are that the men handling it get "jaggers" (steel splinters) in their hands, and that many are seriously injured or killed every year from misused ropes breaking, from being caught in loops and crushed, and from ends whipping around. The wire rope companies have some excellent booklets on proper choice and care of their products, and their engineers are glad to help loggers with their problems.

Tractor Accidents

Crawler tractors are another increasing source of accidents. Here, too, better training is needed. The crawler tractors have a lot of power, and with accessory equipment they are being used to haul bigger and bigger loads of logs. More and more companies are doing tree-length yarding with tractors and then doing their bucking at the landing or even at the mill. There are a lot of advantages in this system, but there are hazards, too. In the first place, the felling crews have to lay the trees down right to minimize work and hazards in the bunching operation. A herringbone pattern, with the felled trees at an angle away from the direction in which they will be pulled out, is best. Then the tree lengths can be pulled directly into the skid road without being switched around, which means loss of time and dangerous work.

There are many reckless tractor operators in the woods. They have tremendous power under their control, and they like to demonstrate it by driving around fast in all directions, riding down smaller trees, taking chances by driving around side slopes, and jerking their loads past obstructions. This is hard on the forest stand reserved for future growth, it is dangerous to the men working around the tractor, hard on the machine, and may mean the injury and even death of the tractor operator himself. The tractor manufacturers are concerned about this situation, and are trying to do something about it. Timber operators should cooperate

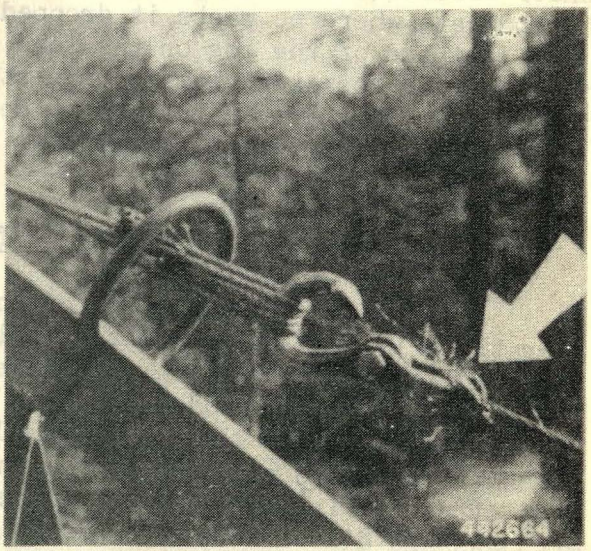


Figure 8.--Proper supervision and training can prevent dangerous practices like this wire rope tied onto a choker hook.

by carefully selecting and training the men they put on these machines, and by insisting on safe practices.

Hazards In Loading

Loading is another dangerous woods operation. This is true whether the men are loading short bolts by hand, or whether a crane-type loader is swinging long logs through the air to positions on the truck. In the first instance there is continual danger of strained backs or rupture from the incorrect work habits, or serious wounds from careless use of the pulp hook. In the second instance there is ever-present danger of more serious accidents. Heavy loads are swinging through the air under very little control. The men on the ground and the toploader are in almost continual danger of being crushed to death. In the interest of reducing the size of the work crew most operators these days are using a pair of tongs in the middle of the log being loaded, instead of a crotch line and end dogs with a man holding a tag line attached to each of the dogs. The log is under much better control with the latter system.

A third system, not much used in the East as yet, is heel booming. In this system a crane with a wide, sturdy, flat-faced wooden or steel boom is used. If steel is used, a flat plate is fastened on the front of the boom and studded with spikes. The log is gripped a little off center with the tongs, and as it is lifted the high end is caught on the front of the boom. From then on the crane operator has his load under control as he swings it, and about all the top loader has to do is indicate where he wants it dropped. The crane operator places first the front end of the log on the load, and then rear end. This system takes a good operator, but is unquestionably a lot safer than having the top loader try to catch and guide into place a swinging, twirling log, which is the common practice in Northeastern operations.

SAFETY--A BIG PROBLEM

The use of semipermanent or portable mills in Northeastern woods operations is increasing. These include pulpwood and millwood slasher saws and long- and short-log sawmills. On these installations there are safety problems similar to those in woodworking plants: guarding of belts, gears, and the saws themselves, and safe work practices around them. With electrically powered installations there are problems of proper installation and grounding of electrical circuits, and with gas and diesel motors those of safe operation and maintenance. All these problems are apt to be more serious on woods installations, because they are frequently moved, and are installed by woodsmen not trained in and often contemptuous of safety devices. They are frequently operated in adverse weather conditions, even with ice, sleet, and snow covering the platforms on which the men are working, and the controls they must handle. The safety measures that should be taken

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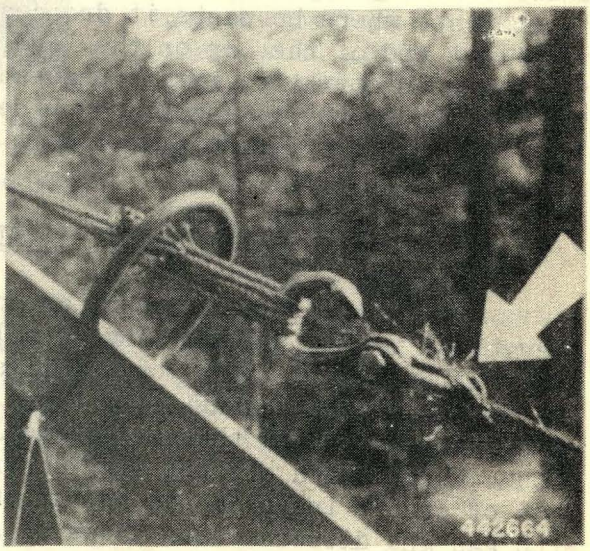

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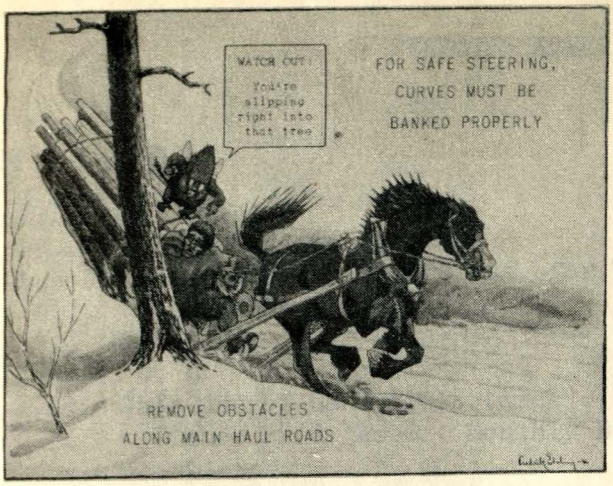
WATCH OUT!
You're slipping right into that tree
FOR SAFE STEERING, CURVES MUST BE BANKED PROPERLY
REMOVE OBSTACLES ALONG MAIN HAUL ROADS

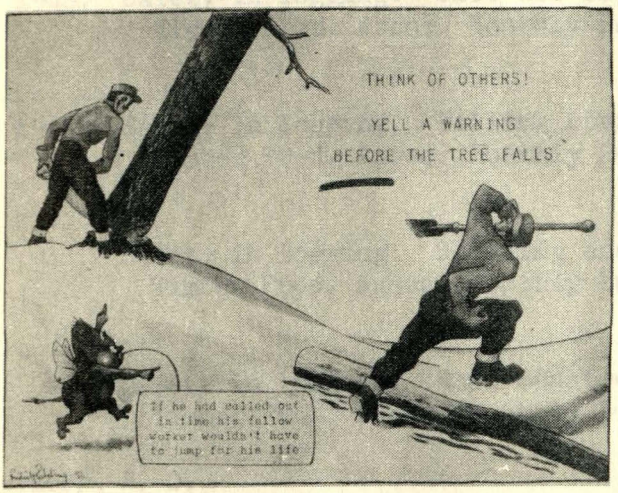
THINK OF OTHERS!
YELL A WARNING BEFORE THE TREE FALLS
If he had called out in time his fellow worker wouldn't have to jump for his life

Figure 9.--Safety posters can constantly remind your men of the hazards they can avoid. These posters are from a Swedish source.

are obvious. A simple shelter over many of these installations would make them safer to work with and more productive. Training and supervision of the personnel operating them is a "must". And proper installation and maintenance would cut down on the number of accidents incurred.

With organized and trained crews, provided with good and properly maintained equipment, a valuable supplement in teaching safety is a series of striking and pertinent safety posters. These should be prominently displayed and changed frequently enough so that they do not grow stale. Such posters have proved their value throughout industry, and throughout the world.

Logging is one of the occupations in which there will always be hazards. Safety has been preached for years, and still accident rates are high. Obviously, many small operators have not found the time for training their men properly. But as logging camps and communities become more stabilized, as logging becomes more mechanized, and as young men are drawn into the occupation, the need for organized training programs will grow. Some of the larger operators have undertaken such programs. Such training will not only make logging work safer, but more efficient. And it will pay dividends.

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1. How to choose and use your axe. 10 pp., illus.
2. How to choose, use and sharpen a crosscut saw. 14 pp., illus.
3. How to select and take care of your bow saw. 10 pp., illus.
4. Wedges and their use in logging. 7 pp., illus.
5. Peavies, cant hooks and pulp hooks. 5 pp., illus.
6. Tools for peeling wood. 6 pp., illus.
7. Some pointers on power saws for logging. 14 pp., illus.
8. Pointers on felling trees. 14 pp., illus.
9. Limbing and bucking the tree. 15 pp., illus.
10. Ground skidding with horses. 17 pp., illus.
11. Skidding with tractors. 20 pp., illus.
12. Wire rope and accessories. 16 pp., illus.
13. Cable skidding. 10 pp., illus.
14. Loading. 24 pp., illus.
15. Winter hauling. 15 pp., illus.
16. Logging trucks. 12 pp., illus.
17. All-weather roads. 22 pp., illus.
18. Glossary of terms. 20 pp.

Training Films

"Timber". 35 mm. sound slide. 17 min. Natl. Safety Council, 20 N. Wacker Drive, Chicago, Ill.

Safety suggestions for men who work in the woods. It covers logging accidents caused by falls, widowmakers, axes and saws, lines and gear, tractors and trucks, rolling logs, and the like. An instructor's manual containing quiz questions and discussion outline accompanies the film.

"Wood Handling Safety". 35 mm. sound slide. 15 min. Brown Co., Berlin, N. H.

Shows safe methods of harvesting and handling pulpwood.

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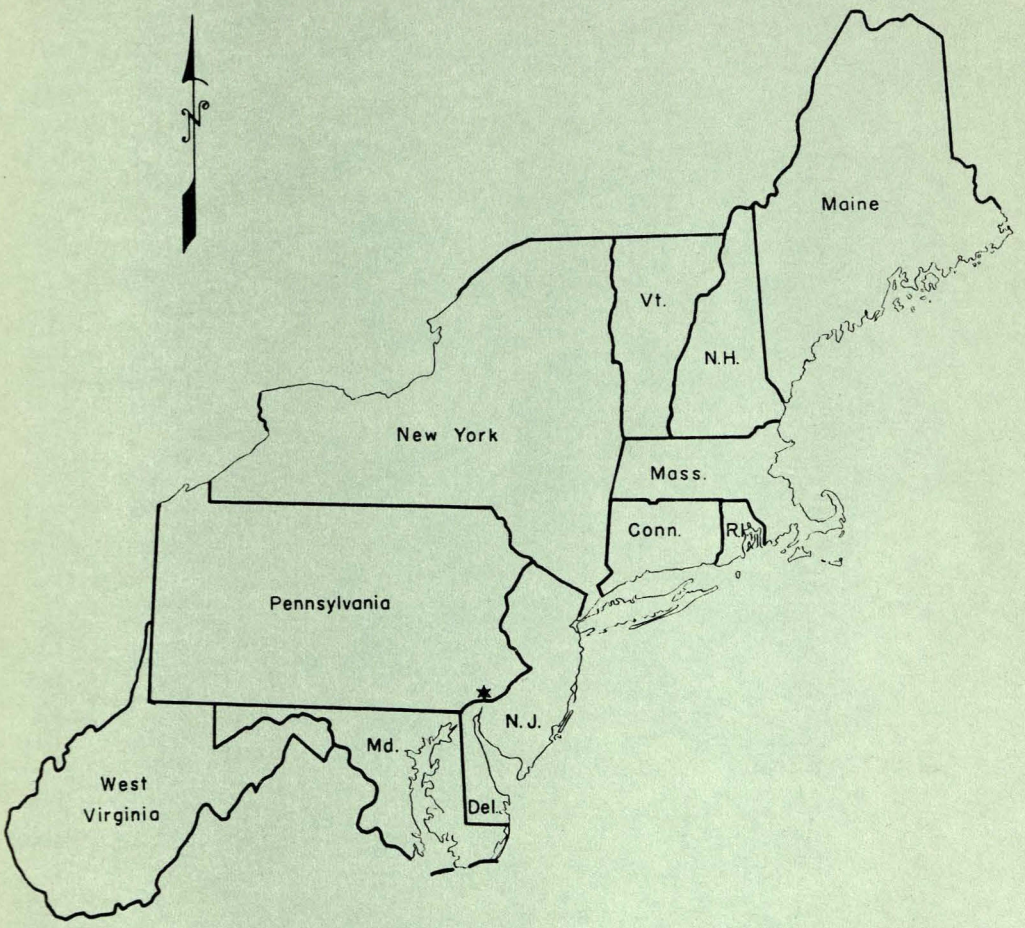
[2]Some of the sections of the Loggers' Handbook are out of print. However, the complete handbook is now being prepared for publication by the Department of Agriculture and is expected to be available within this year.



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